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## DEPARTMENT OF AGRICULTURE.

By virtue of the authority vested in the Secretary of Agriculture by the provision in the Act of Congress entitled "An Act Making Appropriations for the Department of Agriculture and for the Farm Credit Administration for the fiscal year ending June 30, 1936, and for other purposes", approved May 17, 1935 (49 Stat. 247), I, H. A. Wallace, Secretary of Agriculture, do hereby fix, establish, and promulgate in lieu of all existing standards for hay and straw the following standards of quality and condition for Alfalfa and Alfalfa Mixed Hay; Timothy and Clover Hay; Prairie Hay; Johnson and Johnson Mixed Hay; Grain, Wild Oat, Vetch, and Grain Mixed Hay; Lespedeza and Lespedeza Mixed Hay; Soybean and Soybean Mixed Hay; Grass Hay; Mixed Hay; and Straw, which shall be in force and effect on and after April 1, 1936, and so long as Congress shall provide the necessary authority therefor, unless amended or superseded by standards hereafter prescribed and promulgated under such authority.

In testimony whereof I have hereunto set my hand and caused the official seal of the Department of Agriculture to be affixed in the City of Washington this 11th day of January, 1936.

H. A. WALLACE, Secretary.

### STANDARDS FOR HAY<sup>1</sup>

#### DEFINITIONS

For the purposes of the official hay standards of the United States:

**Hay** shall be the harvested, unthreshed herbage of those kinds of forage plants which have recognized feed value as determined by the Bureau of Agricultural Economics, United States Department of Agriculture; which herbage meets the requirements of the various classes in Groups I to IX, inclusive, is not coarse and woody, and does not contain more than 35 percent of foreign material.

**Groups.**—Hay for which there are standards shall be divided into nine groups as follows: Group I, Alfalfa and Alfalfa Mixed Hay; Group II, Timothy and Clover Hay; Group III, Prairie Hay; Group IV, Johnson and Johnson Mixed Hay; Group V, Grain, Wild Oat, Vetch, and Grain Mixed Hay; Group VI, Lespedeza and Lespedeza Mixed Hay; Group VII, Soybean and Soybean Mixed Hay; Group VIII, Grass Hay; and Group IX, Mixed Hay.

**Classes.**—Each group of hay includes one or more classes which are based on the kind of hay or mixture of various kinds and have no reference whatever to quality or condition.

**Grades.**—Each class of hay is graded according to the grade requirements of the three numerical grades and Sam-

ple grade of the group under which it falls and according to the special grades which are applicable.

The following definitions are applicable to all groups of hay and terms used in the class and grade requirements are interpreted according to these definitions.

**Alfalfa** may include not to exceed 10 percent (of the total hay) of clover, vetch, and/or other forage legumes, except that alfalfa shall not have a percentage allowance of clover in the class Alfalfa Clover Mixed.

**Timothy** may include not to exceed 10 percent (of the total hay) of other grasses, except in the classes Timothy Light Grass Mixed and Timothy Heavy Grass Mixed.

**Clover** shall be red clover, alsike clover, and/or white clover and may include not to exceed 10 percent (of the total hay) of alfalfa, vetch, and/or other forage legumes, except that clover shall not have a percentage allowance of alfalfa in the class Alfalfa Clover Mixed.

**Upland grasses** shall be bluestems (*Andropogon* spp.), gamagrasses (*Bouteloua* spp.), paspalum (*Paspalum* spp.), wheatgrasses (*Agropyron* spp.), prairie Junegrass (*Koeleria cristata*), Indian grass (*Sorghastrum nutans*), and/or other upland grasses<sup>2</sup> which grow commonly in virgin upland prairie meadows. Upland grasses may include not to exceed 10 percent (of the total hay) of midland grasses and/or other grasses, except that upland grasses shall not have a percentage allowance of midland grasses in the classes Midland Prairie and Upland-Midland Prairie Mixed.

**Midland grasses** shall be slough grass or prairie cord grass (*Spartina pectinata*), bluejoint (*Calamagrostis* spp.), and/or sprangle top (*Fluminea festucacea*).

**Grasses** unless otherwise specifically provided for shall include (a) redbud, orchard grass, Kentucky bluegrass, Canada bluegrass, crabgrass, smooth bromegrass, ryegrass, barnyard grass, quackgrass, paspalum, Bermuda grass, and wheatgrasses; (b) the following grasses if early cut, wild-rye, annual bromegrasses such as cheat, pigeongrass (sometimes called foxtail or wild millet), and broomsedge; (c) such other cultivated and wild grasses, sedges, and rushes as occur in hay meadows; (d) not to exceed 10 percent (of the total hay) of timothy, Johnson grass, and/or grain hay.

**Johnson grass** may include not to exceed 10 percent (of the total hay) of other grasses and 10 percent (of the total hay) of early cut cane hay, except that Johnson grass shall not have a percentage allowance of other grasses in the classes Johnson Light Grass Mixed and Johnson Heavy Grass Mixed.

**Oat hay** shall be hay of all varieties of tame oats which does not meet the requirements of red oat hay, and may include not to exceed 10 percent (of the total hay) of wheat

<sup>1</sup> The specifications of these standards shall not excuse failure to comply with the provisions of the Food and Drugs Act.

<sup>2</sup> Questions relating to, or samples of the kinds of grasses that may be included in upland grasses should be submitted to the Bureau of Agricultural Economics, United States Department of Agriculture, for determination or interpretation.





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## TABLE OF CONTENTS

	Page
Department of Agriculture:	
Standards of quality and condition for hay and straw--	59
Department of Commerce:	
Bureau of Navigation and Steamboat Inspection:	
Amendment to general rules and regulations concern-	
ing the construction and operation of vessels and	
appurtenances thereof, etc-----	65
United States Patent Office:	
Order No. 3351 relating to the presentation and filing	
of claims-----	68

hay, and/or wild oat hay, and not to exceed 5 percent of barley hay and/or grasses.

*Red oat hay* may include not to exceed 10 percent (of the total hay) of other varieties of tame oat hay, wheat hay, and/or wild oat hay, and not to exceed 5 percent of barley hay and/or grasses.

*Wheat hay* may include not to exceed 10 percent (of the total hay) of oat hay and/or wild oat hay, and not to exceed 5 percent of barley hay and/or grasses.

*Wild oat hay* may include not to exceed 10 percent (of the total hay) of grasses.

*Barley hay* may include not to exceed 10 percent (of the total hay) of other grain hay, and not to exceed 5 percent of grasses.

*Grain hay* shall be hay of the grains oats, barley, wheat, rye, and/or wild oats.

*Vetch* may include not to exceed 10 percent (of the total hay) of alfalfa, clover, and/or other forage legumes.

*Lespedeza* may include not to exceed 10 percent (of the total hay) of alfalfa, clover, vetch, and/or other forage legumes.

*Soybean hay* may include not to exceed 10 percent (of the total hay) of cowpeas, lespedeza, yellow trefoil (black medic), vetch, clover, and/or other forage legumes.

*Legumes* shall be alfalfa, lespedeza, yellow trefoil (black medic), vetch, clover, and/or other plants of the pea family suitable for forage.

*Foreign material* shall be (a) weeds, three-awn or wire-grasses (*Aristida* spp.), ticklegrass (*Agrostis hiemalis*), and

lovegrasses (*Eragrostis* spp.); (b) the following grasses if mature, wild-rye, annual bromegrasses such as cheat, pigeon-grass (sometimes called foxtail or wild millet), broomsedge, and needlegrass (*Stipa* spp.) from which the needles have fallen; (c) such sedges, rushes, and other plants as are coarse and woody or otherwise not suitable for feeding purposes; (d) overripe grain hay, corn stalks, grain straw, stubble, and chaff; and (e) other objectionable matter which occurs naturally in hay.

*Injurious foreign material* shall be sandburs, poisonous plants, harsh bearded grasses such as mature foxtail barley or squirreltail grass (*Hordeum jubatum*), mature ripgut or broncho grass (*Bromus rigidus*), grasses having a sharp pointed callus at the base of the seed such as matured needlegrass (*Stipa* spp.) with the needles attached, mature prairie three-awn grass (*Aristida oligantha*), and/or other matter which is injurious when fed to livestock.

*Filled grain* shall be the kernels of wheat, oats, barley, rye, or wild oats which have reached the late dough stage and which may shrivel somewhat in drying.

*Green color*.—The term "percent green" employed in these standards represents the amount of green color (green appearance) in field-cured hay computed as a percentage of the 100 percent green color of hay produced so as to have received no discoloration from maturity, sun bleach, dew, rain, or other damage.

**NOTE.**—Field-cured hay which, on casual examination, appears to be of uniform green color, nearly always contains slight discolorations which materially lower the amount of green color from the perfect color standard. Thus the standard for the No. 1 grade in the various groups of hay represents an amount of color that is relatively high for field-cured hay.

*Percentages of mixtures and foreign material* shall be based upon percentages by weight of the total hay. Percentages of leaves or leafiness of alfalfa, clover (including blossoms), lespedeza, or soybean hay (including seed pods not badly shattered or in condition to shatter) shall be based upon percentages by weight, respectively, of the total alfalfa, clover, lespedeza, or soybean hay present. Determinations of coarse and/or fine hay in the alfalfa, Johnson, grain, and soybean hay standards shall be based upon percentages by count of stalks measured 2 inches from the cut end, respectively, of the alfalfa, Johnson grass, oat, and soybean stalks present in the hay. Percentages of color shall be based upon color determinations ascertained by the method prescribed by the Bureau of Agricultural Economics, United States Department of Agriculture, which determination shall be expressed in popular terms as "percent green" in the alfalfa, timothy and clover, prairie, Johnson, soybean, and grass hay standards and in descriptive terms in the grain and lespedeza hay standards.

### ALFALFA AND ALFALFA MIXED HAY

#### GROUP I

#### Class requirements

Class	Mixture percentages
Alfalfa-----	Alfalfa with not over 5 percent grasses.
Alfalfa Light Grass Mixed....	A mixture of alfalfa and grasses with over 5 percent but not over 20 percent grasses.
Alfalfa Heavy Grass Mixed....	A mixture of alfalfa and grasses with over 20 percent but not over 60 percent grasses.
Alfalfa Light Timothy Mixed....	A mixture of alfalfa and timothy with over 5 percent but not over 30 percent timothy.
Alfalfa Heavy Timothy Mixed....	A mixture of alfalfa and timothy with over 30 percent alfalfa and over 30 percent timothy.
Alfalfa Clover, Mixed.....	A mixture of alfalfa and clover with over 10 percent but not over 50 percent clover and not over 10 percent grasses.
Alfalfa Light Johnson, Mixed....	A mixture of alfalfa and Johnson grass with over 5 percent but not over 30 percent Johnson grass.
Alfalfa Heavy Johnson, Mixed....	A mixture of alfalfa and Johnson grass with over 30 percent alfalfa and over 30 percent Johnson grass.
Alfalfa Light Grain, Mixed....	A mixture of alfalfa and grain hay with over 5 percent but not over 20 percent grain hay, and not over 10 percent grasses.
Alfalfa Heavy Grain, Mixed....	A mixture of alfalfa and grain hay with over 40 percent alfalfa and over 20 percent grain hay, and not over 10 percent grasses.



*Grade requirements<sup>1</sup> for the classes of Alfalfa, Alfalfa Light Grass Mixed, Alfalfa Light Timothy Mixed, Alfalfa Clover Mixed, Alfalfa Light Johnson Mixed, and Alfalfa Light Grain Mixed*

U. S. Grade No.	Leafiness of alfalfa (percent leaves)	Percent green color	Maximum percent foreign material
1.....	40 or more.....	60 or more.....	5
2.....	25 or more.....	35 or more.....	10
3.....	Less than 25 <sup>1</sup> .....	Less than 35 <sup>1</sup> .....	15
Sample grade.....	Hay which contains more than 15 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly weathered, badly frosted, badly overripe, or very dusty; or which is otherwise of distinctly low quality.		

<sup>1</sup> Hay in which a majority of the alfalfa stalks bear brown and/or black seed pods shall not be graded No. 1 or be assigned any special grade except Coarse.

<sup>2</sup> Does not apply to hay graded No. 3 on account of any other factor.

*Grade requirements<sup>1</sup> for the classes of Alfalfa Heavy Grass Mixed, Alfalfa Heavy Timothy Mixed, Alfalfa Heavy Johnson Mixed, and Alfalfa Heavy Grain Mixed*

U. S. Grade No.	Percent green color	Maximum percent foreign material
1.....	60 or more.....	5
2.....	35 or more.....	10
3.....	Less than 35 <sup>1</sup> .....	15
Sample grade.....	Hay which contains more than 15 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly weathered, badly frosted, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> Hay in which a majority of the alfalfa stalks bear brown and/or black seed pods shall not be graded No. 1 or be assigned any special grade except Coarse.

<sup>2</sup> Does not apply to hay graded No. 3 on account of foreign material.

#### Special Grades

*Grades for extra leafy hay.*—Hay of any grade of the classes in Group I, in which leafiness is a grading factor (Alfalfa, Alfalfa Light Grass Mixed, Alfalfa Light Timothy Mixed, Alfalfa Clover Mixed, Alfalfa Light Johnson Mixed, and Alfalfa Light Grain Mixed) and in which the leafiness of the alfalfa is 50 percent or more, with most of the leaves clinging, shall have the words "Extra Leafy" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Leafy Alfalfa", "U. S. No. 3 Extra Leafy Alfalfa Light Grass Mixed", "U. S. Sample grade Extra Leafy Alfalfa."

*Grades for leafy hay.*—Hay of the grades 2, 3, and Sample grade of the classes in Group I, in which leafiness is a grading factor (Alfalfa, Alfalfa Light Grass Mixed, Alfalfa Light Timothy Mixed, Alfalfa Clover Mixed, Alfalfa Light Johnson Mixed, and Alfalfa Light Grain Mixed) and in which the leafiness of the alfalfa is 40 percent or more, shall have the word "Leafy" included in and made a part of the grade designation, as: "U. S. No. 2 Leafy Alfalfa", "U. S. No. 3 Leafy Extra Green Alfalfa", "U. S. Sample grade Leafy Alfalfa."

*Grades for extra green hay.*—Hay of any grade of any of the classes in Group I, which has 75 percent or more green color, shall have the words "Extra Green" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Green Alfalfa", "U. S. No. 3 Extra Green Alfalfa."

*Grades for green hay.*—Hay of the grades 2, 3, and Sample grade of any of the classes in Group I, which has 60 percent or more green color, shall have the word "Green" included in and made a part of the grade designation, as: "U. S. No. 2 Green Alfalfa", "U. S. No. 3 Green Extra Leafy Alfalfa", "U. S. Sample grade Green Alfalfa."

*Grades for coarse hay.*—Hay of any grade of any of the classes in Group I, in which the alfalfa stalks are hard and round, and more than 30 percent of the alfalfa stalks have diameters equal to and greater than the diameter of No. 11 steel wire (approximately twelve one-hundredths of an inch)

by steel wire gage standards, shall have the word "Coarse" included in and made a part of the grade designation, as: "U. S. No. 2 Coarse Alfalfa", "U. S. Sample grade Coarse Alfalfa."

#### TIMOTHY AND CLOVER HAY

##### GROUP II

##### Class requirements

Class	Mixture percentages
Timothy.....	Timothy with not over 10 percent legumes.
Timothy Light Clover Mixed.....	A mixture of timothy and clover with over 10 percent but not over 30 percent clover.
Timothy Medium Clover Mixed.....	A mixture of timothy and clover with over 30 percent but not over 50 percent clover.
Timothy Light Grass Mixed.....	A mixture of timothy and other grasses with over 10 percent but not over 30 percent other grasses and not over 10 percent legumes.
Timothy Heavy Grass Mixed.....	A mixture of timothy and other grasses with over 30 percent but not over 60 percent other grasses and not over 10 percent legumes.
Timothy Light Alfalfa Mixed.....	A mixture of timothy and alfalfa with over 10 percent but not over 30 percent alfalfa.
Clover.....	Clover with not over 20 percent timothy, other grasses, and/or grain hay.
Clover Light Timothy Mixed.....	A mixture of clover and timothy with over 50 percent clover and over 20 percent timothy.

*Grade requirements<sup>1</sup> for all classes of Timothy and Clover Hay*

U. S. Grade No.	Percent green color	Maximum percent foreign material
1.....	45 or more.....	10
2.....	30 or more.....	15
3.....	Less than 30 <sup>1</sup> .....	20
Sample grade.....	Hay which contains more than 20 percent of foreign material or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> Hay that is stained shall not be graded Extra Green, Green, No. 1, or No. 2.

<sup>2</sup> Does not apply to hay that is graded No. 3 on account of foreign material.

#### Special Grades

*Grades for extra green hay.*—Hay of any grade of any of the classes in Group II, which has 60 percent or more green color, shall have the words "Extra Green" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Green Timothy", "U. S. No. 3 Extra Green Clover Light Timothy Mixed", "U. S. Sample grade Extra Green Clover."

*Grades for green hay.*—Hay of the grades 2, 3, and Sample grade of any of the classes in Group II, which has 45 percent or more green color, shall have the word "Green" included in and made a part of the grade designation, as: "U. S. No. 2 Green Timothy", "U. S. Sample grade Green Clover Light Timothy Mixed."

*Grades for stemmy hay.*—Hay of any grade of the classes Clover and Clover Light Timothy Mixed in Group II, in which the leaves and blossoms of the clover constitute less than 20 percent of the total weight of the clover, shall have the word "Stemmy" included in and made a part of the grade designation, as: "U. S. No. 2 Stemmy Clover", "U. S. Sample grade Stemmy Clover Light Timothy Mixed."

#### PRAIRIE HAY

##### GROUP III

##### Class requirements

Class	Mixture percentages
Upland Prairie.....	Upland grasses with not over 10 percent legumes.
Midland Prairie.....	Midland grasses or a mixture of midland grasses, with upland, timothy, and/or other grasses, with over 40 percent midland grasses and not over 10 percent legumes.
Upland-Midland Prairie Mixed.....	A mixture of upland and midland grasses with over 10 percent but not over 40 percent midland grasses and not over 10 percent legumes.



Grade requirements<sup>1</sup> for all classes of Prairie Hay

U. S. Grade No.	Percent green color	Maximum percent foreign material
1.....	50 or more.....	10
2.....	35 or more.....	15
3.....	Less than 35 <sup>1</sup> .....	20
Sample grade.....	Hay which contains more than 20 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> (a) Hay that is stained shall not be graded Extra Green, Green, No. 1, or No. 2; (b) hay of the class Upland Prairie in which one-third or more of the upland grass stalks bear seed heads and/or jointed stems shall be graded one grade lower than it would be graded on the factor of color.

<sup>2</sup> Does not apply to hay graded No. 3 on account of foreign material.

## Special Grades

**Grades for extra green hay.**—Hay of any grade of any of the classes in Group III, which has 65 percent or more green color, shall have the words "Extra Green" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Green Upland Prairie", "U. S. No. 3 Extra Green Midland Prairie."

**Grades for green hay.**—Hay of the grades 2, 3, and Sample grade of any of the classes in Group III, which has 50 percent or more green color, shall have the word "Green" included in and made a part of the grade designation, as: "U. S. No. 2 Green Upland Prairie."

## JOHNSON AND JOHNSON MIXED HAY

## GROUP IV

## Class requirements

Class	Mixture percentages
Johnson.....	Johnson grass with not over 10 percent legumes.
Johnson Light Grass Mixed.....	A mixture of Johnson grass and other grasses with over 10 percent but not over 30 percent other grasses and not over 10 percent legumes.
Johnson Heavy Grass Mixed.....	A mixture of Johnson grass and other grasses with over 30 percent, but not over 60 percent, other grasses and not over 10 percent legumes.
Johnson Light Alfalfa Mixed.....	A mixture of Johnson grass and alfalfa with over 10 percent, but not over 30 percent, alfalfa.
Johnson Light Lespedeza Mixed.....	A mixture of Johnson grass and lespedeza with over 10 percent, but not over 30 percent, lespedeza.

## Grade requirements for all classes of Johnson and Johnson Mixed Hay

U. S. Grade No.	Percent green color	Maximum percent foreign material
1.....	40.....	10
2.....	25 or more.....	15
3.....	Less than 25 <sup>1</sup> .....	20
Sample grade.....	Hay which contains more than 20 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> Does not apply to hay that is graded No. 3 on account of foreign material.

## Special Grades

**Grades for extra green hay.**—Hay of any grade of any of the classes in Group IV, which has 55 percent or more green color, shall have the words "Extra Green" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Green Johnson", "U. S. No. 3 Extra Green Johnson Light Grass Mixed."

**Grades for green hay.**—Hay of the grades 2, 3, and Sample grade of any of the classes in Group IV, which has 40 percent or more green color, shall have the word "Green" included in and made a part of the grade designation, as: "U. S. No. 3 Green Johnson."

**Grades for fine hay.**—Hay of any grade of the class Johnson in Group IV, which has 70 percent or more of the Johnson grass stalks with diameters equal to and smaller than the diameter of No. 13 steel wire (approximately nine one-hundredths of an inch), and no stalks having diameters equal to, or greater than, the diameter of No. 10 steel wire (approximately thirteen one-hundredths of an inch) by steel wire gage standards, shall have the word "Fine" included in and made a part of the grade designation, as: "U. S. No. 1 Fine Johnson", "U. S. Sample grade Fine Johnson."

**Grades for coarse hay.**—Hay of any grade of any of the classes in Group IV, in which more than 30 percent of the Johnson grass stalks have diameters equal to and greater than the diameter of No. 9 steel wire (approximately fifteen one-hundredths of an inch) by steel wire gage standards, shall have the word "Coarse" included in and made a part of the grade designation, as: "U. S. No. 2 Coarse Johnson", "U. S. Sample grade Coarse Johnson."

## GRAIN, WILD OAT, VETCH, AND GRAIN MIXED HAY

## GROUP V

## Class requirements

Class	Mixture percentages
Oat Hay.....	Oat hay with not over 10 percent legumes.
Red Oat Hay.....	Red oat hay with not over 10 percent legumes.
Wheat Hay.....	Wheat hay with not over 10 percent legumes.
Barley Hay.....	Barley hay with not over 10 percent legumes.
Wild Oat Hay.....	Wild oat hay with not over 30 percent other grain hay and not over 10 percent legumes.
Red Oat and Wild Oat Mixed.....	A mixture of red oat hay and wild oat hay, or wheat hay and wild oat hay, with over 10 percent but not over 40 percent wild oat hay and not over 10 percent legumes in each case.
Wheat and Wild Oat Mixed.....	A mixture of wild oat hay and other grain hay with over 40 percent wild oat hay and over 30 percent other grain hay and not over 10 percent legumes.
Wild Oat and Grain Mixed.....	A mixture of wild oat hay and other grain hay with over 40 percent wild oat hay and over 30 percent other grain hay and not over 10 percent legumes.
Oat Light Alfalfa Mixed.....	A mixture of oat hay (including red oat hay) and alfalfa, wheat hay and alfalfa, or barley hay and alfalfa, with over 10 percent but not over 40 percent alfalfa and not over 10 percent grasses including the 5 percent allowance in oat hay, wheat hay, or barley hay in each case.
Wheat Light Alfalfa Mixed.....	A mixture of wheat hay (including red wheat hay) and alfalfa, oat hay and alfalfa, or barley hay and alfalfa, with over 10 percent but not over 40 percent alfalfa and not over 10 percent grasses including the 5 percent allowance in oat hay or wheat hay in each case.
Barley Light Alfalfa Mixed.....	A mixture of barley hay (including red barley hay) and alfalfa, oat hay and alfalfa, or wheat hay and alfalfa, with over 10 percent but not over 40 percent alfalfa and not over 10 percent grasses including the 5 percent allowance in oat hay or wheat hay in each case.
Oat Light Vetch Mixed.....	A mixture of oat hay (including red oat hay) and vetch hay, or wheat hay and vetch hay, with over 10 percent, but not over 40 percent, vetch and not over 10 percent grasses including the 5 percent allowance in oat hay or wheat hay in each case.
Wheat Light Vetch Mixed.....	A mixture of wheat hay (including red wheat hay) and vetch hay, or oat hay and vetch hay, with over 10 percent, but not over 40 percent, vetch and not over 10 percent grasses including the 5 percent allowance in oat hay or wheat hay in each case.
Oat and Vetch Mixed.....	A mixture of oat hay (including red oat hay) and vetch hay, or wheat hay and vetch hay, with over 40 percent, but not over 75 percent, vetch and not over 10 percent grasses including the 5 percent allowance in oat hay or wheat hay in each case.
Wheat and Vetch Mixed.....	A mixture of wheat hay (including red wheat hay) and vetch hay, or oat hay and vetch hay, with over 40 percent, but not over 75 percent, vetch and not over 10 percent grasses including the 5 percent allowance in oat hay or wheat hay in each case.
Vetch Hay.....	Vetch hay with over 75 percent vetch.

Grade requirements for the classes of Oat Hay, Red Oat Hay, Barley Hay,<sup>1</sup> Oat and Wild Oat Mixed, Oat Light Alfalfa Mixed, and Barley Light Alfalfa Mixed<sup>1</sup>

U. S. Grade No.	Maturity	Color	Maximum percent foreign material
1.....	The grain shall have been cut in the dough stage and shall contain half-formed kernels and "filled" grain, with little or no shattering of kernels.	Bright, natural green to yellowish green or bright reddish purple.	5
2.....	The grain shall have been cut in the dough stage or before and may contain half-formed kernels and "filled" grain, with little or no shattering of kernels.	Yellowish green or reddish purple to yellow with traces of green or reddish yellow. May be slightly discolored or slightly weathered.	10
3.....	May be fully matured.	Yellow. May be discolored, weathered or stained.	15
Sample grade.....	Hay of the above classes which contains more than 15 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, sour, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or otherwise of distinctly low quality.		

<sup>1</sup> Barley hay to meet the requirements of grade No. 1 shall have been cut in the early dough stage or before, and may contain half-formed kernels and a little "filled" grain.



*Grade requirements for the classes of Wheat Hay, Wild Oat Hay, Wheat and Wild Oat Mixed, Wild Oat and Grain Mixed, and Wheat Light Alfalfa Mixed*

U. S. Grade No.	Maturity	Color	Maximum percent foreign material
1.....	The grain shall have been cut in the milk stage or before and may contain small, shriveled kernels and a little "filled" grain.	Bright, natural green to yellowish green.	5
2.....	The grain shall have been cut in the early dough stage or before and may contain half-formed kernels and some "filled" grain, although such "filled" grain shall not predominate.	Yellowish green to yellow with traces of green. May be slightly discolored or slightly weathered.	10
3.....	May be fully matured.....	Yellow or greenish yellow with many brown leaves. May be stained or weathered.	15
Sample grade.....	Hay of the above classes which contains more than 15 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, sour, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or otherwise of distinctly low quality.		

*Grade requirements for the classes of Oat Light Vetch Mixed, Wheat Light Vetch Mixed, Oat and Vetch Mixed, Wheat and Vetch Mixed, and Vetch Hay*

U. S. Grade no.	Maturity	Color	Maximum percent foreign material
1.....	The vetch shall have been cut when the pods on the lower $\frac{1}{4}$ of the plant are one-half filled or before. The grain shall have been cut in the early dough stage or before and may contain half-formed kernels and a little "filled" grain.	Bright, natural green to greenish yellow.	5
2.....	The vetch shall have been cut when the pods on the lower $\frac{1}{2}$ of the plant are one-half filled or before. The grain shall have been cut in the dough stage or before and may contain some "filled" grain, although such "filled" grain shall not predominate.	Greenish yellow to brownish yellow. May be slightly discolored or slightly weathered.	10
3.....	May be fully matured.....	Yellowish brown or brown. May be stained or weathered.	15
Sample grade.....	Hay of the above classes which contains more than 15 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, sour, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or otherwise of distinctly low quality.		

*Special Grades*

**Grades for Coarse Hay.**—Hay of any grade of the classes of Oat Hay, Red Oat Hay, and Oat and Wild Oat Mixed in Group V, in which more than 30 percent of the oat stalks have diameters equal to and greater than the diameter of No. 6 steel wire (approximately nineteen one-hundredths of an inch) by steel wire gage standards, shall have the word "Coarse" included in and made a part of the grade designation, as: "U. S. No. 2 Coarse Oat Hay."

**LESPEDEZA AND LESPEDEZA MIXED HAY**

**GROUP VI**

*Class requirements*

Class	Mixture percentages
Lespedeza.....	Lespedeza with not over 10 percent grasses.
Lespedeza Light Grass Mixed.....	A mixture of lespedeza and grasses with over 10 percent but not over 30 percent grasses.
Lespedeza Heavy Grass Mixed.....	A mixture of lespedeza and grasses with over 30 percent but not over 60 percent grasses.
Lespedeza Light Johnson Mixed.....	A mixture of lespedeza and Johnson grass with over 10 percent but not over 30 percent Johnson grass.
Lespedeza Heavy Johnson Mixed.....	A mixture of lespedeza and Johnson grass with over 30 percent lespedeza and over 30 percent Johnson grass.

*Grade requirements for the classes of Lespedeza, Lespedeza Light Grass Mixed, and Lespedeza Light Johnson Mixed*

U. S. Grade No.	Leafiness of lespedeza (percent leaves)	Color	Maximum percent foreign material
1.....	65.....	Green to greenish brown.....	10
2.....	30.....	Greenish brown to brown.....	15
3.....	Less than 30 <sup>1</sup> .....	Brown.....	20
Sample grade.....	Hay which contains more than 20 percent foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.		

<sup>1</sup> Does not apply to hay graded No. 3 on account of any other factor.

*Grade requirements for the classes of Lespedeza Heavy Grass Mixed and Lespedeza Heavy Johnson Mixed*

U. S. Grade No.	Color	Maximum percent foreign material
1.....	Green to greenish brown.....	10
2.....	Greenish brown to brown.....	15
3.....	Brown.....	20
Sample grade.....	Hay which contains more than 20 percent foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> Does not apply to hay graded No. 3 on account of foreign material.

**Grades for extra leafy hay.**—Hay of any grade of the classes in Group VI, in which leafiness is a grading factor (Lespedeza, Lespedeza Light Grass Mixed, and Lespedeza Light Johnson Mixed) and in which the leafiness of the lespedeza is 55 percent or more, with most of the leaves clinging, shall have the words "Extra Leafy" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Leafy Lespedeza", "U. S. No. 3 Extra Leafy Lespedeza Light Grass Mixed", "U. S. Sample grade Extra Leafy Lespedeza."

**Grades for leafy hay.**—Hay of the grades 2, 3, and Sample grade of the classes in Group VI, in which leafiness is a grading factor (Lespedeza, Lespedeza Light Grass Mixed, and Lespedeza Light Johnson Mixed) and in which the leafiness of the lespedeza is 45 percent or more, shall have the word "Leafy" included in and made a part of the grade designation, as: "U. S. No. 2 Leafy Lespedeza", "U. S. Sample grade Leafy Lespedeza."

**Grades for extra green hay.**—Hay of any grade of any of the classes in Group VI, which is natural green in color,



shall have the words "Extra Green" included in and made a part of the grade designation, as "U. S. No. 1 Extra Green Lespedeza."

**Grades for green hay.**—Hay of the grades 2, 3, and Sample grade of any of the classes in Group VI, which is green to greenish brown, shall have the word "Green" included in and made a part of the grade designation, as: "U. S. No. 2 Green Lespedeza."

#### SOYBEAN AND SOYBEAN MIXED HAY

##### GROUP VII

##### Class requirements

Class	Mixture percentages
Soybean Hay.....	Soybean hay with not over 10 percent Johnson grass or 15 percent other grasses.
Soybean Light Grass Mixed..	A mixture of soybean hay and grasses with 15 percent but not over 30 percent grasses.
Soybean Heavy Grass Mixed..	A mixture of soybean hay and grasses with over 30 percent but not over 60 percent grasses.
Soybean Light Johnson Mixed.	A mixture of soybean hay and Johnson grass with over 10 percent but not over 30 percent Johnson grass.
Soybean Heavy Johnson Mixed.	A mixture of soybean hay and Johnson grass with over 30 percent but not over 60 percent Johnson grass.

##### Grade requirements for the classes of Soybean Hay, Soybean Light Grass Mixed, and Soybean Light Johnson Mixed

U. S. Grade No.	Leafiness of soybean hay (percent leaves)	Percent green color	Maximum percent foreign material
1.....	40 or more.....	40 or more.....	10
2.....	25 or more.....	25 or more.....	15
3.....	Less than 25 <sup>1</sup> .....	Less than 25 <sup>1</sup> .....	20
Sample grade.....	Hay which contains more than 20 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.		

<sup>1</sup> Does not apply to hay graded No. 3 on account of any other factor.

##### Grade requirements for the classes of Soybean Heavy Grass Mixed and Soybean Heavy Johnson Mixed

U. S. Grade No.	Percent green color	Maximum percent foreign material
1.....	40 or more.....	10
2.....	25 or more.....	15
3.....	Less than 25 <sup>1</sup> .....	20
Sample grade.....	Hay which contains more than 20 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> Does not apply to hay graded No. 3 on account of foreign material.

##### Special Grades

**Grades for extra green hay.**—Hay of any grade of any of the classes in Group VII, which has 55 percent or more green color, shall have the words "Extra Green" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Green Soybean Hay."

**Grades for green hay.**—Hay of the grades 2, 3, and Sample grade of any of the classes in Group VII, which has 40 percent or more green color, shall have the word "Green" included in and made a part of the grade designations, as: "U. S. No. 2 Green Soybean Hay."

**Grades for leafy hay.**—Hay of the grades 2, 3, and Sample grade of the classes in Group VII, in which leafiness is a grading factor (Soybean Hay, Soybean Light Grass

Mixed, and Soybean Light Johnson Mixed) and in which the leafiness of the soybean is 40 percent or more, shall have the word "Leafy" included in and made a part of the grade designation, as: "U. S. No. 2 Leafy Soybean Hay", "U. S. No. 3 Leafy Soybean Light Grass Mixed."

**Grades for coarse hay.**—Hay of any grade of any of the classes in Group VII, in which more than 30 percent of the soybean stalks have diameters equal to and greater than the diameter of No. 4 steel wire (approximately twenty-three one-hundredths of an inch) by steel wire gage standards, shall have the word "Coarse" included in and made a part of the grade designation, as: "U. S. No. 2 Coarse Soybean Hay."

#### GRASS HAY

##### GROUP VIII

The Group Grass Hay has one class, namely, Grass Hay which shall be hay containing more than 60 percent of those grasses, sedges, and/or rushes other than timothy, Johnson grass, Upland and Midland grasses, grain cut for hay, millet, and/or Sudan Grass.

**EXPLANATORY NOTE.**—Questions relating to, or samples of the kinds of grasses, sedges, and/or rushes that may be included in the class Grass Hay should be submitted to the Bureau of Agricultural Economics, United States Department of Agriculture, for determination or interpretation.

##### Grade requirements<sup>1</sup> for Grass Hay

U. S. Grade No.	Percent green color	Maximum percent foreign material
1.....	50 or more.....	10
2.....	35 or more.....	15
3.....	Less than 35 <sup>1</sup> .....	20
Sample grade.....	Hay which contains more than 20 percent of foreign material; or which contains more than a trace of injurious foreign material; or which has any objectionable odor; or which is undercured, heating, hot, wet, musty, moldy, caked, badly broken, badly stained, badly weathered, badly overripe, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> Hay that is stained shall not be graded Extra Green, Green, No. 1 or No. 2.

<sup>2</sup> Does not apply to hay graded No. 3 on account of foreign material.

**Grade designations for Grass Hay** shall include after the words "Grass Hay" either (1) such local trade names as will identify the kind of grasses, sedges, and/or rushes, or (2) the common name of the various kinds of grasses, sedges, rushes, and legumes which constitute more than 10 percent of the mixture written in the order of importance. Grasses which cannot be identified can be described by the term "Miscellaneous Grasses."

##### Special Grades

**Grades for extra green hay.**—Grass Hay of any grade, which has 65 percent or more green color, shall have the words "Extra Green" included in and made a part of the grade designation, as: "U. S. No. 1 Extra Green Grass Hay, Colorado South Park," "U. S. No. 3 Extra Green Grass Hay, Redtop and Bluegrass."

**Grades for green hay.**—Grass Hay of the grades 2, 3, and Sample grade, which has 50 percent or more green color, shall have the word "Green" included in and made a part of the grade designation, as: "U. S. No. 2 Green Grass Hay, Redtop."

#### MIXED HAY

##### GROUP IX

The Group Mixed Hay has one class, namely, Mixed Hay which shall be any mixture of hay not classified in the Groups I to VIII, inclusive, but which contains 50 percent or more alfalfa, timothy, clover, upland grasses, midland grasses, Johnson grass, grain hay, wild oat hay, vetch hay, lespedeza, soybean hay, and grasses either singly or in combination as defined in the United States standards for hay.

**Grades for Mixed Hay.**—Mixed Hay shall be graded according to the grade requirements and definitions for the



kind of hay which predominates in the mixture, except that all numerical and special grade specifications pertaining to leafiness, stemminess, coarseness, and fineness shall be disregarded.

The grade designation for Mixed Hay shall include successively, in the order named, (1) the letters "U. S."; (2) the number of the grade or the words "Sample grade", as the case may be, and any special grade that may apply; (3) the words "Mixed Hay"; and (4) the name and approximate percentage of each kind of hay which constitutes more than 10 percent of the mixture written in the order of importance.

#### STANDARDS FOR STRAW

[Wheat, Oat, Barley, Rye, and Rice Straw]

#### DEFINITIONS

For the purposes of the United States standards for Wheat, Oat, Barley, Rye, and Rice Straw:

**Straw** shall be the remnants of wheat, oat, barley, rye, and rice crops from which the grain has been threshed, and may include not to exceed 10 percent (of the total straw) of grasses that are not coarse and woody.

**Chaff** shall be shattered glumes, also all pieces of straw not over four inches in length.

**Foreign material** shall be all matter other than straw except grasses that are not coarse and woody.

**Color.**—The color specifications "bright" and "weathered or stained," shall be interpreted according to the color determinations ascertained by the method prescribed by the Bureau of Agricultural Economics, United States Department of Agriculture.

**Percentages of chaff and foreign material** shall be based upon percentages by weight of the total straw.

#### Grade requirements

U. S. Grade No.	Color	Maximum percent chaff <sup>1</sup>
1	Bright	35
2	Weathered or stained	35
Sample grade	Straw which contains more than 10 percent of foreign material; or more than 75 percent chaff; or which is heating, hot, wet, musty, moldy, caked, badly stained, badly weathered, or very dusty; or which is otherwise of distinctly low quality.	

<sup>1</sup> The special grades for "chaffy straw" apply to straw of any numerical grade or to Sample grade containing more than 35 percent chaff.

**Grade designations for straw** shall include successively in the order named, (1) the letters "U. S."; (2) the number of the grade or the words "Sample grade", as the case may be, and any special grade that may apply; and (3) the words "Wheat Straw, Cat Straw, Barley Straw, Rye Straw, or Rice Straw", as the case may be.

#### Special Grades

**Grades for straight rye straw.**—Rye straw of any grade, which is straight and untangled from threshing and which has been pressed into large box-pressed bales, shall have the word "Straight" included in and made a part of the grade designation, as: "U. S. No. 1 Straight Rye Straw", "U. S. Sample grade Straight Rye Straw (Moldy)."

**Grades for long rye straw.**—Rye straw of any grade, which is straight and untangled from threshing and which has been pressed into perpetual-pressed bales, shall have the word "Long" included in and made a part of the grade designation, as: "U. S. No. 1 Long Rye Straw."

**Grades for chaffy straw.**—Wheat Straw, Oat Straw, Barley Straw, Rye Straw, or Rice Straw of any grade, which contains more than 35 percent chaff, shall have the word "Chaffy" included in and made a part of the grade designation, as: "U. S. No. 1 Chaffy Oat Straw", "U. S. Sample grade Chaffy Barley Straw", "U. S. Sample grade Chaffy Wheat Straw."

[Filed, March 24, 1936; 1:03 p. m.]

## DEPARTMENT OF COMMERCE.

### Bureau of Navigation and Steamboat Inspection.

#### AMENDMENTS TO GENERAL RULES AND REGULATIONS

[Fifty-third supplement]

#### RULE I. SPECIFICATIONS FOR MATERIAL USED IN THE CONSTRUCTION OF BOILERS, APPURTENANCES, PRESSURE VESSELS, CASTINGS, PIPING, VALVES, FITTINGS, ETC.

The following was added to the paragraph numbered 1, rule I, page 1, Fifty-first Supplement to General Rules and Regulations:

Where existing vessels are reboilered, the mountings and attachments, including feed and blow-off valves and fittings, shall be renewed in accordance with these rules. The steam piping shall be gaged and examined by the local inspectors and if found to be of the thickness required at the time the piping was installed may be continued in service, provided the local inspectors are satisfied that its condition is such as to warrant its continued use.

Paragraph M-2-1 (a), section 2, rule I, Fifty-first Supplement, was amended to read as follows:

M-2-1. *Materials and purposes.*—(a) There shall be two grades of marine boiler steel plates, namely, grade A, which may be used for shells and other structural parts of boilers or pressure vessels, which are not subject to either flanging or forge welding, and grade B, which may be used for all boiler parts but which shall be used for combustion chambers or other flanged or forge welded parts of boilers and pressure vessels where the pressure exceeds 100 pounds per square inch.

Section 18, rule I, Fifty-first Supplement, was amended by the addition of the following paragraph:

M-18-2 (e). Gray iron castings intended for use in connection with normal temperatures and pressures, not in excess of 30 pounds per square inch, are exempt from the requirements of this section, but such castings shall be tested to a hydrostatic pressure of 50 pounds.

#### RULE II. DESIGN, CONSTRUCTION, INSTALLATION, INSPECTION, AND REPAIR OF BOILERS, PRESSURE VESSELS, AND PIPING SYSTEMS

Section 16, rule II, Fifty-first Supplement, was amended by the addition of the following paragraph:

C-16-7. *Safety valves for evaporators.*—(a) The capacity of safety valves required for use on evaporators shall be determined as follows:

(b) The steam inlet to the coils shall have an orifice the diameter of which does not exceed that found by the following formula:

$$d = D \frac{pn}{P_6}$$

where  $d$ —diameter of steam inlet or orifice of coils in inches

$D$ —required diameter of safety valve in inches.

$p$ —absolute working pressure on evaporator shell.

$P$ —absolute pressure of steam entering coils.

$n$ —number of safety valves on evaporator.

(c) On new installations the safety valves shall be set to the working pressure, and tested for accumulation in accordance with the requirements of C-14-3 (e), except that the duration of tests shall be for a period of five minutes.

Paragraph I-18-5, section 18, rule II, Fifty-first Supplement, was amended to read as follows:

I-18-5. *Inspection of mountings and attachments.*—(a) *Examination of stop valves and mountings.*—It shall be the duty of inspectors to require stop valves and mountings on boilers to be opened up every fourth year at the time of the annual inspection, and at intermediate periods if he deems it necessary to ascertain if any flaws or defects have developed, also to examine the stud bolts attaching mountings or fittings to the boiler. A record of the inspection of mountings and attachments shall be made in form 840-B.

The note following paragraph P-19-14 (a), page 115, rule II, Fifty-first Supplement, was amended as follows:

NOTE.—The term "powerful jet of water", within the meaning of this rule, is a jet of water capable of being delivered at a pressure not less than 100 pounds per square inch, through a nozzle orifice not less than  $\frac{1}{8}$  inch in diameter where the internal diameter of the hose exceeds  $1\frac{1}{2}$  inches. Where the internal diameter of the hose does not exceed  $1\frac{1}{2}$  inches, the nozzle orifice shall have a minimum diameter of not less than  $\frac{1}{8}$  inch.

Paragraph W-20-1, section 20, rule II, Fifty-first Supplement, was amended by the addition of a subparagraph (c) to read as follows:

(c) In preparing drawings of welded structures for approval, the welding symbols approved by the American Welding Society shall be used to designate the type and class of welding.



Subparagraph (k), paragraph W-20-3, section 20, rule II, Fifty-first Supplement, was deleted and the following substituted:

(k) The number, type, size, and form of weld-test specimens submitted for the purpose of qualifying welding operators, also the procedure followed in the preparation of these specimens and the system of certifying approved welding operators, shall be in accordance with the instructions prescribed by the Bureau.

#### RULE III. BOATS, RAFTS, BULKHEADS, AND LIFESAVING APPLIANCES

##### *Strength and Operation of the Davits*

Paragraph 7, section 3, rule III, General Rules and Regulations, Ocean, was amended to read as follows:

Vessels of class (c) shall be equipped with davits or other practicable means for properly launching the lifeboats. Mechanical davits, when installed on vessels of class (c), shall be subject to all the tests required by this section.

##### *How Lifeboats Shall Be Carried and Davits and Cranes Required*

The paragraph next to the last paragraph of section 3, Ocean; section 21, Coastwise; section 15, Great Lakes; section 14, Bays, Sounds, and Lakes other than the Great Lakes; and section 23, Rivers, rule III, General Rules and Regulations, was amended to read as follows:

No davit arm or frame comprising mechanical davits shall be placed on board any vessel until all these requirements have been fully complied with. Whenever mechanical davits or parts of davits, such as davit arms or frames, are installed on vessels to take the place of davits, davit arms or frames which have become damaged or broken, such davits or parts shall have in addition to the manufacturer's name plate a substantial bronze plate showing that the respective parts are for replacement, this additional plate to indicate the name of the manufacturer, serial number of the davit, and the date. Such replacements and repairs to davits shall be tested in accordance with the provisions of this section, and when the inspector is satisfied that the device is sufficient in strength and operation, he shall stamp the letters "U. S. I." and the initials of his name on the plate.

##### *Lifeboat Equipment*

The seventh paragraph under the above heading on pages 3 and 7, Fifty-second Supplement to General Rules and Regulations, was amended to read as follows:

**Signal pistol.**—An approved signal pistol with lanyard attached and 12 red lights, the red light to give forth a brilliant red flame of not less than 30,000-candlepower capacity capable of being projected vertically to a height of not less than 150 feet and of not less than 30 seconds burning duration, the whole to be contained and carried in a portable watertight metal case. The storage of this equipment, except in the emergency and motor lifeboats, is discretionary with the master.

The tenth paragraph of each section under this heading, pages 3 and 7, Fifty-second Supplement, was amended to read as follows:

**Flashlight.**—One approved flashlight contained in a portable, watertight metal case. The flashlights shall be of all-metal, rugged construction, of focusing type with a reflector head of about 2 inches in diameter. Two extra lamps shall be provided for the flashlight.

##### *Motor Lifeboat Equipment*

The paragraph covering requirements for searchlight under the above heading, page 5, Fifty-second Supplement, was deleted and the following paragraphs substituted therefor:

**Searchlight.**—The searchlight provided for use on motor lifeboats shall be so constructed as to project a beam of light at least 200 yards and at that distance effectively illuminate a light-colored object over a width of about 60 feet. The light shall be capable of turning in its mounting base through a horizontal angle of 360° and it shall be possible by further adjustment to direct the light rays at least 60° upward and at least 45° downward from the horizontal plane. There shall be suitable manual adjustment for securely locking the searchlight in all positions.

The searchlight shall be substantially constructed of noncorrosive materials and properly mounted. It shall be of weather-proof construction capable of resisting the corroding effects of moist salt atmosphere and the effects of extreme heat and extreme cold. The light shall be capable of resisting several severe shocks and vibrations without damage.

The searchlight shall be operated from the same source of power as the radio installation, which source shall be capable of operating the light intermittently for a period of 6 hours and continuously for a period of 3 hours.

Two spare bulbs shall be provided for the searchlight and carried in the motor lifeboat. (Effective on new installations and replacements on existing installations immediately.)

The second paragraph covering requirements for wireless telegraph installation in motor lifeboats, page 6, Fifty-second Supplement, was deleted and the following substituted:

The power supply for the searchlight and wireless telegraph installation above provided for shall be derived from one source. It shall be ample to operate both such appliances simultaneously.

##### *Mechanical Davits*

Section 14, rule III, General Rules and Regulations, Bays, Sounds, and Lakes other than the Great Lakes, was amended by the addition of a paragraph to be the third paragraph of the section, and to read as follows:

All steam vessels, other than steam vessels carrying passengers, shall be equipped with davits or other practicable means for launching the lifeboats. Mechanical davits, when installed on steam vessels not carrying passengers, shall be subject to all the tests required by this section.

Section 15, rule III, General Rules and Regulations, Great Lakes, was amended by the addition of the following, which is to be the third paragraph of the section:

Vessels of classes (e) and (f) shall be equipped with davits or other practicable means for properly launching the lifeboats. Mechanical davits, when installed on vessels of classes (e) and (f) shall be subject to all the tests required by this section.

Section 21, rule III, General Rules and Regulations, Coastwise, was amended by the addition of the following, which is to be the third paragraph of the section:

Vessels of class (c) shall be equipped with davits or other practicable means for properly launching the lifeboats. Mechanical davits, when installed on vessels of class (c), shall be subject to all the tests required by this section.

Section 23, rule III, General Rules and Regulations, Rivers, was amended by the addition of the following, which is to be the third paragraph of the section:

All steam vessels, other than steam vessels carrying passengers, shall be equipped with davits or other practicable means for properly launching the lifeboats. Mechanical davits, when installed on steamers not carrying passengers, shall be subject to all the tests required by this section.

##### *Bulkheads*

Section 56, Bays, Sounds, and Lakes other than the Great Lakes, and section 57, Great Lakes, rule III, General Rules and Regulations, were deleted and the following substituted therefor:

Every mechanically propelled vessel of more than 75 gross tons carrying passengers for hire shall have a sufficient number of iron or steel transverse watertight bulkheads so that the vessel will remain afloat and have positive stability in the event any one main compartment is flooded.

A forepeak or collision bulkhead shall be fitted and located not less than 5 percent of the length of the ship, and not more than 10 feet plus 5 percent of the length of the ship from the bow, at load water line.

One bulkhead shall be fitted at the forward end of the machinery space (which includes boiler space) and one bulkhead shall be fitted at the aft end of the machinery space. Other transverse bulkheads shall be so located as to meet the above requirements of subdivision and stability.

Main transverse bulkheads shall not be stepped, but may be recessed. No recess shall be fitted nearer the vessel's side than one-fifth of the vessel's beam amidships measured at right angles to the center line at the level of the load water line on which the subdivision is based. Bulkheads shall extend to a deck whose distance above the load water line is sufficient to enable the subdivision and stability requirements to be met with a fair margin of safety.

If the distance between two adjacent main transverse watertight bulkheads is less than 10 feet plus 2 percent of the vessel's length measured between perpendiculars at the extremities of the vessel's load water line, only one of these bulkheads shall be regarded as forming a boundary of a main compartment.

Existing vessels shall comply with the above not later than January 1, 1938, unless it can be shown by the owners that their application is impracticable and unreasonable.

#### RULE IV. FIRE APPARATUS

Rule IV, General Rules, and Regulations, Rivers, was amended by the elimination of all requirements pertaining to barrels and tanks as part of fire-fighting equipment.



**Fire-Detecting and Sprinkler System**

Section 16, Ocean and Coastwise, and corresponding sections of rule IV of all other classes of the General Rules and Regulations, relating to fire-detecting and sprinkler systems, page 29 of the Fifty-second Supplement, were deleted and the following substituted:

**Fire-Detecting and Sprinkler System****Existing Vessels (Flammable Construction)**

All passenger vessels over 150 feet in length with sleeping quarters for passengers, which vessels have neither a fire-detecting nor a sprinkler system in enclosed quarters for passengers, shall be fitted with an automatic sprinkler system of an approved type in the sleeping quarters for passengers and such other spaces as may be deemed necessary.

In all such vessels as are now equipped with a fire-detecting or sprinkler system, such system shall be extended to cover such other parts of the vessel as the Bureau directs. An existing sprinkler system shall not be extended unless the Bureau is satisfied with its efficiency. Such additions and alterations in piping, pumps, etc., shall be made as, in the opinion of the Bureau, are necessary to insure the efficiency of the extended system. If the detecting system is of a type which cannot meet the requirements of an approved system, such system shall not be extended until the Bureau is assured of the efficiency of the system by the results of tests conducted on such parts of the equipment as may be directed.

In exceptional conditions, the substitution of additional watchmen may be allowed for the above requirements. In such cases, however, the number of watchmen employed shall be sufficient to patrol such parts of the vessel as the Bureau directs, at least once in every 10 minutes. The watch system shall be of a supervised type which automatically and permanently records the rounds of the patrol. The permanent records are to be kept available for inspection by representatives of the Bureau.

Where no detecting system is in the cargo compartments, a smoke-detecting system shall be installed except in cargo compartments accessible to passengers or crew while the vessel is being navigated, which compartments shall be equipped with a water-sprinkler system. (Effective July 1, 1936.)

**New or Existing Vessels (Nonflammable Construction)**

All passenger vessels of more than 150 feet in length with sleeping quarters for passengers shall be equipped with an automatic fire-detecting system or an automatic sprinkler system of a type approved by the Board of Supervising Inspectors.

An automatic electrical system, a pneumatic-tube system, or an automatic water-sprinkler system shall be installed in all enclosed quarters for passengers, officers, and crew, including sleeping quarters, lockers, linen rooms, paint, oil, and lamp rooms, carpenter shops, galleys, and such other spaces as may be deemed necessary.

A smoke-detecting system shall be installed in all cargo compartments, except cargo compartments accessible to passengers or crew while the vessel is being navigated, which spaces shall be fitted with a water-sprinkler system.

Engine rooms, boiler rooms, bathrooms, small clothes lockers, and other similar spaces, when so constructed as to minimize the fire hazard, may not be required to have the foregoing installations. (Effective immediately.)

**RULE V. LICENSED OFFICERS****Medical Examination for Original License**

Paragraph 1, section 2, rule V, all classes of the General Rules and Regulations, was amended to read as follows:

No candidate for original license as master, mate, pilot, or engineer shall be examined until he presents a certificate from the United States Public Health Service, duly attested, that he has passed a satisfactory [oral]<sup>1</sup> examination based [upon the contents of the "Manual on Ship Sanitation and First Aid"]<sup>1</sup> on the contents of "The Ship's Medicine Chest and First Aid at Sea" or some other manual arranged for the purpose having the approval of the United States Public Health Service.

**Professional Examination**

The following was added as a second paragraph to section 4, rule V, General Rules and Regulations, Ocean and Coastwise:

No applicant for a license who is a naturalized citizen and who has obtained his experience on foreign vessels shall be given a grade of license higher than that upon which he has actually served while acting under the authority of a foreign license, and a portion of such service or experience shall be obtained within the 5 years preceding his application for examination.

**Alarm Bells and Loudspeaker Systems**

Section 20, rule V, Ocean and Coastwise, Fifty-second Supplement to General Rules and Regulations, page 37, was deleted and the following substituted therefor:

<sup>1</sup> Words in brackets were canceled type; brackets used for notation only.

**Alarm bells.**—All vessels over 100 gross tons shall have all sleeping accommodations equipped with a sufficient number of alarm bells so located as to warn all the occupants. The alarm bells, if electric, shall be operated from an open switch from the pilot house or bridge. The bells shall be of such size, character, and construction as to provide an alarm throughout the spaces for which they are provided.

**Loudspeaker systems (where required).**—All passenger vessels on which lifeboats are stowed more than 100 feet from the navigating bridge shall be equipped with a loudspeaker system which shall enable an officer on the bridge to broadcast, separately or collectively, to the following locations:

1. Lifeboat stations (port and starboard).
2. Embarkation deck (port and starboard).
3. Main quarters for crew.
4. Public spaces as required by the Bureau.

**General requirements.**—The entire loudspeaker system shall be controlled from a single location on the bridge. It shall be maintained in an efficient condition at all times and when the vessel is under way, shall always be supplied with power and ready for immediate use. The system shall be equipped with a call or attention signal, which shall be a distinctive note of about 1,500 cycles frequency. An automatic switching arrangement shall be provided, which will transfer the system to the emergency power supply in event of the failure of the regular power supply. The system shall be so installed as to minimize extensive damage by fire or collision. The distribution of sound and the fidelity of the system shall be such that speech can be readily understood in all locations covered under operating conditions at sea, and the character and quality of reproduction shall be such that the talker's voice will be readily recognizable. Provision shall be made to maintain the voltage required to operate the system within plus or minus 5 percent of normal under conditions of variations up to 20 percent plus or minus in either the regular or emergency power supply.

The amplifier and power equipment shall be installed at a point well above the bulkhead deck. The system shall be so designed and installed that grounds, short or open circuits occurring at any point in the distribution system will disable not more than one loudspeaker and shall not reduce the volume on the remaining speakers more than 3 decibels. The amplifier system shall be so designed that grounds, short or open circuits on any part of the system will not cause overloading which will reduce the volume output more than 3 decibels or noticeably affect the quality of reproduction. The system shall function entirely independently of any public address or music distribution system, and the system shall not be used for entertainment purposes.

**Approval.**—Plans and detailed technical specifications of any proposed loudspeaker system shall be submitted to the Bureau for comment and approval. Existing wiring and other facilities, including the hull, piping, etc., may be utilized, provided:

(a) The method of attachment to these facilities and the requirements of their use has first been approved by the Bureau.

(b) The wiring used is of a type and character approved for new construction.

(c) The use of such existing facilities will not adversely affect the function for which they were originally intended.

All items of equipment including amplifiers, microphones, loudspeakers, and control apparatus shall be of a type that has been tested and approved for such service by the Bureau. Before the loudspeaker system fitted on a particular vessel is approved, it shall be submitted to tests to be conducted by representatives of the Bureau.

**Spare parts.**—Vessels shall be provided with a complete set of installation plans and operating instructions and an adequate supply of spare parts to include at least the following: One spare microphone; 100-percent vacuum tubes of all types used; and a reasonable supply of all other damageable items including relays, condensers, and loudspeaking units of each type.

**Tests.**—The complete system shall be given an operating test at least once every week and also before departing from port of call. These tests shall be made by a licensed officer of the vessel and the condition of the equipment entered in the vessel's log. (Effective on new vessels immediately and on existing vessels Jan. 1, 1938.)

**License as Third Mate, Ocean and Coastwise Vessels**

The third provision of section 39, Ocean, and the second provision of section 44, Coastwise vessels, rule V, General Rules and Regulations, were amended to read as follows:

A graduate who has served 2 years in the seamanship class of a State nautical school ship, established under authority of an act of Congress approved March 4, 1911, and completed two ocean and coastwise cruises before graduation: *Provided*, That where the graduate has completed the two cruises, but not the 2 years' service required, additional service equal to the difference in time shall be served in the deck department of ocean or coastwise steam vessels; or

**Licenses as Second and Third Assistant Engineers**

The fourth provision of section 42, Rivers; the fifth provision of section 44 and the fourth provision of section 45, Bays, Sounds, and Lakes other than the Great Lakes; the fifth provision of section 45 and the fourth provision of sec-



tion 46, Great Lakes; and the fifth provision of section 53, Ocean and Coastwise, were amended to read as follows:

A graduate from an engineering class of a State nautical school ship, established under the authority of an act of Congress approved March 4, 1911, the term of such engineering class to be based upon a period of 2 years; or,

#### Second and Third Assistant Engineers of Motor Vessels

The second provision of section 50, Bays, Sounds, and Lakes other than the Great Lakes; the second provision of section 51, Great Lakes; the second provision of section 51, Rivers; and the second provision of section 58, Ocean and Coastwise, rule V, General Rules and Regulations, were amended to read as follows:

A graduate from an engineering class of a State nautical school ship, established under authority of an act of Congress approved March 4, 1911, the term of such engineering class to be based upon a period of 2 years, after he has served at least 6 months as oiler on motor vessels, or has been employed at least 6 months in the construction and installation of engines for motor vessels; or,

#### Alarm Bells

Section 15, Great Lakes; section 13, Bays, Sounds, and Lakes other than the Great Lakes; and section 12, Rivers, rule VI, Fifty-second Supplement to General Rules and Regulations, page 40, were deleted and the following substituted:

All vessels over 100 gross tons shall have all sleeping accommodations equipped with a sufficient number of alarm bells so located as to warn all the occupants. The alarm bells, if electric, shall be operated from an open switch from the pilot house or bridge. The bells shall be of such size, character, and construction as to provide an alarm throughout the spaces for which they are provided.

#### EQUIPMENT APPROVED

##### Feed-Water Heaters, Evaporators, Etc.

Improved Paracoll feed-water heaters, sizes 4-7 to 20-7, Davis Engineering Corporation, Elizabeth, N. J.

Improved Paracoll feed-water heaters, sizes 16-11 to 36-11, Davis Engineering Corporation, Elizabeth, N. J.

Reilly feed-water heater, no. 6, type D, Griscom-Russell Co., New York, N. Y.

No. 28 R. & D. cast-iron shell Paracoll evaporator, Davis Engineering Corporation, Elizabeth, N. J.

Three-stage feed-water heater, type 6-24-81-V, Alco Products, Inc., New York, N. Y.

##### Boiler Appurtenances, Etc.

B. K. W. vent check valve, Robert H. Wager, New York, N. Y.

Feed-water and filter tanks, American Shipbuilding Co., Cleveland, Ohio.

Johnson two-valve trap, the Johnson Corporation, Three Rivers, Mich.

Paracoll feed-water filter and grease extractor, Davis Engineering Corporation, Elizabeth, N. J.

Paracoll tubular fuel-oil heater and Paracoll tubular condensate cooler, Davis Engineering Corporation, Elizabeth, N. J.

Paracoll lubricating-oil coolers, Davis Engineering Corporation, Elizabeth, N. J.

Reflex water gage, L. J. Bordo Co., Inc., Glenside, Pa.

Soldered fittings for nonferrous pipe, Mueller Brass Co., Port Huron, Mich.

Taco salt-water heaters, type UC-20-84, Taco Heaters, Inc., New York, N. Y.

Yarway steam trap, Yarnall-Waring Co., Philadelphia, Pa.

##### Emergency Lighting Unit

Independent automatic emergency lighting unit, Clarence P. Hulst, New York, N. Y.

##### Life Preserver

Adult's block-cork life preserver, Wilber & Son, San Francisco, Calif.

##### Fire Extinguishers

Alert, Model DS, 2½-gallon, soda-acid, fire extinguisher, American-LaFrance and Foamite Industries, Inc., Elmira, N. Y.

Childs, Model DS, 2½-gallon, soda-acid, fire extinguisher, American-LaFrance and Foamite Industries, Inc., Elmira, N. Y.

Duragard, 2½-gallon, pump tank, fire extinguisher (approved at present for use with fresh water only), Pyrene Manufacturing Co., Newark, N. J.

Empire, 2½-gallon, soda-acid, fire extinguisher, American-LaFrance and Foamite Industries, Inc., Elmira, N. Y.

Polar Bear, Anti-Freeze, Fyr-Pyter, 2½-gallon, fire extinguisher, Fyr-Pyter Co., Dayton, Ohio.

Sodex, 2½-gallon, soda-acid, fire extinguisher, American-LaFrance and Foamite Industries, Inc., Elmira, N. Y.

##### Sprinkling Systems

Automatic sprinkler system: Solder type, Duraspeed; bulb type, Quartzoid; and Sidewall, bulb type, Quartzoid, Grinnell Co., Inc., Providence, R. I.

Simplex automatic sprinkler system (dry pipe), Grinnell Co., Inc., Providence, R. I.

#### MISCELLANEOUS

Referring to the Fifty-second Supplement to General Rules and Regulations, June 18, 1935, page 57, wherein it is stated that the use of the Raymond boat-releasing apparatus will be prohibited after January 1, 1936, this date has been extended to February 1, 1937.

With reference to the approval of an adult's kapok life preserver for the Atlantic-Pacific Manufacturing Co., Brooklyn, N. Y., this approval was withdrawn pending certain adjustments.

The local district of San Juan, P. R., has been transferred from the tenth to the second supervising inspection district.

#### ACTION OF EXECUTIVE COMMITTEES APPROVED

The minutes of the meetings of executive committees of the Board of Supervising Inspectors held on September 4, 1935, September 24, 1935, and December 13, 1935, were ratified by the Board and approved by the Secretary of Commerce under the provisions of section 4405, Revised Statutes.

The action of the executive committee at a meeting on September 4, 1935, with reference to amendments to the General Rules and Regulations and approval of certain equipment, was published in the bulletin dated December 2, 1935.

The action of the executive committee which met on September 24, 1935, covering amendments to rules I and II, was published in a circular letter dated October 5, 1935, which was addressed to steamship owners, shipbuilders, various manufacturers, etc.

The action of the executive committee which convened December 13, 1935, covering approval of equipment, was published in bulletin dated January 2, 1936.

#### DISTRIBUTION OF THIS SUPPLEMENT

An initial supply of this supplement will be issued to inspectors. A further supply may be obtained on requisition for blank forms. Inspectors will issue this supplement to shipbuilders and others concerned in their respective districts. It will be issued by the Department to steamboat companies and boiler manufacturers.

JOSEPH B. WEAVER, Director.

[Filed, March 24, 1936; 12:36 p. m.]

#### United States Patent Office.

ORDER NO. 3351

MARCH 12, 1936.

Acting under the provisions of Section 483 of the Revised Statutes (U. S. C., title 35, sec. 6) and with the approval of the Secretary of Commerce, Rules 45, 48, 52, 63, 93, 94, 110, and 154, are amended as follows, to take effect June 1, 1936:

**Rule 45.**—By canceling the last sentence which reads:

In order to facilitate printing, each paragraph or claim should be completed on the page upon which it is begun and should not be split between two pages except where the length of a paragraph or claim requires more than one full page.

**Rule 48.**—By cancelling the present rule and substituting therefor the following:

48. When an applicant presents a claim for matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented, he shall file a supplemental oath to the effect that the subject matter of the proposed amendment was part of his invention, was invented before he filed his original application; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years before his application, or in public use or on sale in the United States for more than two years before the date of his application, that said invention has not been patented in any foreign country on an application filed by himself or his legal representatives or assigns more than twelve months prior to his application in the United



States, and has not been abandoned. Such supplemental oath must be attached to and properly identify the proposed amendment.

In proper cases the oath here required may be made on information and belief by an executor or administrator of a deceased person or a guardian, conservator, or representative of an insane person. (See Rule 46.)

**Rule 52.**—By rewriting the sentence in lines 13 and 14 thereof to read as follows:

India ink alone must be used for pen drawings, to secure perfectly black solid lines.

By striking out line 24 thereof and inserting the following:

(c) All drawings must be made with the pen or by a photolithographic process which will give them satisfactory reproduction characteristics.

**Rule 68.**—By placing a period after the word "action" in line 2 thereof and cancelling the words "and he may amend as often as the examiner presents new references or reasons for rejection." in lines 2, 3, and 4.

By cancelling in line 4 thereof the words "In so amending" and inserting "In amending an application in response to a rejection."

**Rule 93.**—By cancelling in lines 7 to 12 thereof the sentences beginning with "In order to" and ending with "parties filing them." and inserting in lieu thereof the following:

In order to ascertain whether any question of priority arises the Commissioner may call upon any junior applicant to state in writing under oath the date and the character of the earliest fact or act, susceptible of proof, which will be relied upon to establish conception of the invention under consideration. The sworn statement filed in compliance with this rule will be retained by the Patent Office separate from the application file and if an interference is declared will be opened simultaneously with the preliminary statement of the party filing the same.

By striking out in line 14 the word "ten" and inserting in lieu thereof the word *twenty*.

**Rule 94.**—By cancelling in the last paragraph in lines 2 and 3 the words "before an interference is declared."

**Rule 110.**—By placing *period* after word "office" in paragraph one, line 3, thereof, striking out words "showing the following facts:", and adding the following sentence:

When the invention was made in the United States, the statement should so allege and show the following facts:

By cancelling paragraph (a).

By changing the designation of the following paragraphs as (b) to (a), (c) to (b), and inserting as paragraph (c) the following:

(c) The date of the first act or acts (other than the acts specified in (a) and (b)) which, if proven, would establish conception of the invention, and a brief description of such act or acts.

By inserting in paragraph eight, line 4, after the word "others" the words—

or if there have been no other acts which, if proven, would establish conception of the invention.

By inserting in paragraph nine, line 2, after the word "should" the following words: "so allege and"

By striking out paragraph eleven and inserting the following new paragraph:

(b) Whether or not the invention was ever patented; if so, when and where, giving the date and number of each patent, the date of publication, and the date of sealing thereof; and shall state the date, number, and country of the first application filed by him for the same invention before the filing in the United States.

**Rule 154.**—By cancelling item (5) in paragraph (c) and inserting the following:

(5) that the deposition was read by or to the witness before he signed the same, and that he signed the same in the presence of the officer;

By adding to item (6) in paragraph (c), after sentence ending with the word "controversy" the following sentence:

If any of the foregoing requirements are waived the certificate shall so state.

CONWAY P. COE, Commissioner.

[Filed, March 24, 1936; 12:36 p. m.]



